

SCORE More on the Shore

Field Lesson

Grade Level

5th grade

Learning Objectives

Observe and identify the various types of species within an oyster reef and its surroundings.

Guiding Question

Do intertidal physical factors affect the abundance and diversity of animal populations? What types of animals will we find in an oyster reef, a tidal creek, and a marsh?

Materials

quadrant box, hand lens, gloves, rakes, tongs, band-aids/First Aid kit, rulers, camera, specimen jars, sketch pads, pencils, clipboards, buckets, spades, sieves, shovels, old sneakers-they're going to get muddy!

Teaching Time

Three field studies- suggested in September, February, and May. Each trip will require approximately two hours.

Seating Arrangement

Small groups of four students for field work: an artist, a recorder, a materials manager, and a specimen counter. Two to three students per seat on the bus.

Maximum Number of Students

28 and that is with many adults for supervision

Key Words

species, population, ecosystem, niche, organism, environment, biodiversity, abundance, intertidal, physical factors, interdependent

Background Information

Teacher needs to be familiar with the common names of typical species found in an oyster reef and its surroundings. Of course, you'll also need to know an area to take your class.

Learning Procedures

1. Explain the purpose of the field study. Identify and describe the area surrounding an oyster reef such as tidal creeks, marshlands, etc.
2. Model how to record data within a quadrant.
3. Introduce your guiding question.
4. Establish groups. Stress time restraints and safety issues.
5. Load your group and materials.
6. Guide student groups to various areas to reduce crowding. Provide assistance and support to groups as students observe, record, and sketch their findings in each quadrant.
7. Allow approximately thirty minutes within each of the three selected areas: oyster reef, marsh, tidal creek. (Investigate the areas you have available to you!) TAKE PICTURES!
8. Provide time for sharing. Collect specimens in buckets to observe in the classroom. (Return these on your way home from school if possible)
9. Allocate time when you return to class for groups to reflect and finalize their data and sketches. 1
10. Students reflect in their science notebooks. Encourage questions! We want to investigate further!

Why is this Important to Me?

This lesson is important for students to begin to understand that species are interdependent.

Assessment

Develop rubrics for assessing students' science notebook reflections. Observation of cooperative groups.

Adaptations

Use any three different areas accessible to your group.

Resources

<http://www.csc.noaa.gov/scoysters>

<http://www.dnr.state.sc.us/marine/mrri/shellfish/index.htm>

Cross-Curricular Connections

Math-averages, tallying, graphing, and estimating ELA- writing in science notebooks, speaking and listening skills.

Science Extensions

More frequent field studies. Students use their own yard as a comparison.

South Carolina Curriculum Connections:

Science

I. Inquiry

A. Process Skills

1. Observe

a) Use the senses and simple tools to gather information about objects or events such as size, shape, color, texture, sound, position, and change.

2. Classify

a) Compare, sort and group concrete objects according to two attributes.

4. Communicate

a) Use drawings, tables, graphs, written and oral language to describe objects and explain ideas and actions.

5. Infer

a) Explain or interpret an observation based on data and prior knowledge.

B. Inquiry

1. Plan and conduct a simple investigation.

a) Identify questions that can be answered through scientific investigations.

b) Design and conduct a scientific investigation.

c) Use appropriate tools and techniques to gather, analyze, and interpret data.

d) Develop descriptions, explanations, predictions, and models using evidence.

e) Use mathematical thinking in all aspects of scientific inquiry.

f) Communicate outcomes and explanations.

II. Life Science

B. Populations and Ecosystems

1. A population consists of all individuals of a species that occur together at a given place and time. All populations live together and the physical factors with which they interact compose an ecosystem.
 - a. Define a population.
 - b. Investigate and understand how plants and animals in aquatic/terrestrial ecosystems interact with one another and with the nonliving environment.
2. Populations of organisms can be categorized by the function they serve in an ecosystem. Plants and some microorganisms are producers-they make their own food. All animals, including humans, are consumers, which obtain food by eating other organisms. Decomposers, primarily bacteria and fungi, are consumers that use waste materials and dead organisms for food.
 - a. Distinguish among the roles organisms serve in a food web (producers, decomposers, consumers, prey, and predators).

Math

V. Measurement

- A. Understand the concepts and attributes of length, capacity, weight (mass), perimeter, area volume, time, temperature, and angle measure.
- B. Understand the structure and use of nonstandard and standard systems of measurement.
- C. Estimate, construct, and use measurement for description and comparison.
- G. Connect measurement to other aspects of mathematics and to other disciplines.

English/Language Arts

III. Listening

- A. The student will listen, draw conclusions, and share responses in subject related group learning activities.
 1. Participate in and contribute to discussions across content areas
 2. Organize information to present reports of group activities.
 3. Summarize information gathered in group activities.
 4. Follow multi-step directions.

- B. The student will use appropriate listening skills to conduct and interpret surveys and interviews, to listen critically and record information accurately, and to research and report information.

IV. Writing

- D. The student will keep journals and write drafts in English language arts classes and other disciplines to understand and record experiences and ideas